



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-1071; Project Identifier AD-2021-01055-E]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation Turboshift Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2017-18-14, which applies to certain Rolls-Royce Corporation (RRC) 250 model turboshaft engines. AD 2017-18-14 requires repetitive visual inspections and fluorescent penetrant inspections (FPIs) of the 3rd-stage turbine wheel and removal from service of the 4th-stage turbine wheel. Since the FAA issued AD 2017-18-14, the manufacturer redesigned the 3rd-stage turbine wheel. This proposed AD would require replacement of the 3rd-stage and 4th-stage turbine wheels. This proposed AD would also revise the applicability to add an additional turboshaft engine model. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Rolls-Royce Corporation, 450 South Meridian Street, Mail Code NB-01-06, Indianapolis, IN 46225; phone: (317) 230-2720; email: HelicoptCustSupp@Rolls-Royce.com; website: www.rolls-royce.com. You may view this service information at the Airworthiness Products Section, Operational Safety Branch, FAA, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-1071; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: John Tallarovic, Aviation Safety Engineer, Chicago ACO, FAA, 2300 E. Devon Avenue, Des Plaines, IL 60018; phone: (847) 294-8180; fax: (847) 294-7834; email: john.m.tallarovic@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2021-1071; Project Identifier AD-2021-01055-E” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to John Tallarovic, Aviation Safety Engineer, Chicago ACO, FAA, 2300 E. Devon Avenue, Des Plaines, IL 60018. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2017-18-14, Amendment 39-19023 (82 FR 42443, September 8, 2017), (AD 2017-18-14), for RRC 250-C20, -C20B, -C20F, -C20J, -C20R, -C20R/1, -C20R/2, -C20R/4, -C20W, -C300/A1, and -C300/B1 turboshaft engines with either a 3rd-stage turbine wheel, part number (P/N) 23065818, or a 4th-stage turbine wheel, P/N 23055944 or RR30000240, installed. AD 2017-18-14 was prompted by in-service turbine blade failures that revealed the need for changes to the inspections of a certain 3rd-stage turbine wheel and removal from service of a certain 4th-stage turbine wheel. AD 2017-18-14 requires repetitive visual inspections and FPIs of the 3rd-stage turbine wheel and removal from service of the 4th-stage turbine wheel. AD 2017-18-14 also revises the applicability to remove all RRC turboprop engines and adds additional turboshaft engines. The agency issued AD 2017-18-14 to prevent failure of the 3rd-stage and 4th-stage turbine wheel blades, damage to the engine, and damage to the aircraft.

Actions Since AD 2017-18-14 Was Issued

Since the FAA issued AD 2017-18-14, the manufacturer redesigned the 3rd-stage turbine wheel. The manufacturer has issued Rolls-Royce (RR) Alert Commercial Engine Bulletin (CEB) CEB A-1428 / CEB A-72-4111 (single document), specifying procedures

for replacement of the 3rd-stage turbine wheel, P/N 23065818, with the new increased blade fillet 3rd-stage turbine wheel, P/N M250-10473. Additionally, the FAA determined that the RRC 250-C20C (T63-A-720) model turboshaft engine is also susceptible to the unsafe condition. The FAA, therefore, added RRC 250-C20C (T63-A-720) model turboshaft engines to the applicability of this proposed AD. The FAA is proposing this AD to require the replacement of 3rd-stage and 4th-stage turbine wheels with redesigned 3rd-stage and 4th-stage turbine wheels.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information

The FAA reviewed RR Alert CEB CEB A-1428 / CEB A-72-4111 (single document), Revision 1, dated September 29, 2021. This service information describes procedures for replacing the 3rd-stage turbine wheel, P/N 23065818, with the new increased blade fillet 3rd-stage turbine wheel, P/N M250-10473.

The FAA reviewed Rolls-Royce Alert CEB CEB-A-1422 / CEB-A-72-4108 (single document), Original Issue, dated September 13, 2017. This service information describes procedures for replacing 4th-stage turbine wheel, P/N 23055944, with the new increased fillet 4th-stage turbine wheel, P/N M250-10445.

The FAA also reviewed Rolls-Royce Alert Service Bulletin SB RR300-A-72-024, Original Issue, dated September 13, 2017. This service information describes procedures for replacing the 4th-stage turbine wheel, P/N RR30000240, with the new increased fillet 4th-stage turbine wheel, P/N RR30000494.

Proposed AD Requirements in this NPRM

This proposed AD would require removal and replacement of the 3rd-stage and 4th-stage turbine wheels.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 3,041 3rd-stage turbine wheels and 3,769 4th-stage turbine wheels installed on helicopters of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Replace 3rd-stage turbine wheel, P/N 23065818	3 work-hours x \$85 per hour = \$255	\$11,170	\$11,425	\$34,743,425 (3,041 engines)
Replace 4th-stage turbine wheel, P/N 23055944 or RR30000240	3 work-hours x \$85 per hour = \$255	\$8,928	\$9,183	\$34,610,727 (3,769 engines)

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some of the costs of this proposed AD may be covered under warranty, thereby reducing the cost impact on affected individuals.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

- 2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive 2017-18-14, Amendment 39-19023 (82 FR 42443, September 8, 2017); and
- b. Adding the following new airworthiness directive:

Rolls-Royce Corporation: Docket No. FAA-2021-1071; Project Identifier AD-2021-01055-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2017-18-14, Amendment 39-19023 (82 FR 42443, September 8, 2017).

(c) Applicability

This AD applies to Rolls-Royce Corporation (RRC) 250-C20, 250-C20B, 250-C20C (T63-A-720), 250-C20F, 250-C20J, 250-C20R, 250-C20R/1, 250-C20R/2, 250-C20R/4, 250-C20W, 250-C300/A1, and 250-C300/B1 model turboshaft engines with either a 3rd-stage turbine wheel, part number (P/N) 23065818, or a 4th-stage turbine wheel, P/N 23055944 or RR30000240, installed.

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by in-service turbine blade failures that resulted in the loss of power and engine in-flight shutdowns. The FAA is issuing this AD to prevent failure of the 3rd-stage and 4th-stage turbine blades. The unsafe condition, if not addressed, could result in damage to the engine and damage to the aircraft.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Within 1,775 hours since last visual inspection and fluorescent penetrant inspection (FPI), or at the next engine shop visit, whichever occurs first after the effective date of this AD, remove:

(i) 3rd-stage turbine wheel, P/N 23065818, and replace with a part eligible for installation.

(ii) 4th-stage turbine wheel, P/N 23055944, and replace with a part eligible for installation.

(2) Within 2,025 hours since last visual inspection and FPI inspection, or at the next engine shop visit, whichever occurs first after the effective date of this AD, remove 4th-stage turbine wheel, P/N RR30000240, and replace with a part eligible for installation.

(h) Definitions

(1) For this purpose of this AD, an “engine shop visit” is the induction of an engine into the shop for maintenance in which the turbine module is separated from the exhaust collector, the gas-producer-support is separated from the power-turbine-support, or there is separation of pairs of major mating engine flanges, except that the separation of engine flanges solely for the purposes of transportation without subsequent engine maintenance does not constitute an engine shop visit.

(2) For the purpose of this AD, a “part eligible for installation” is a 3rd-stage turbine wheel or 4th-stage turbine wheel that does not have a P/N listed in the Applicability, paragraph (c), of this AD.

(i) Special Flight Permit

A special flight permit may be issued in accordance with 14 CFR 21.197 and 21.199 to permit a one-time, non-revenue ferry flight to operate the airplane to a maintenance facility where the engine can be removed from service. This ferry flight must be performed with only essential flight crew.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Chicago ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(k) Related Information

For more information about this AD, contact John Tallarovic, Aviation Safety Engineer, Chicago ACO, FAA, 2300 E. Devon Avenue, Des Plaines, IL 60018; phone: (847) 294-8180; fax: (847) 294-7834; email: john.m.tallarovic@faa.gov.

Issued on December 9, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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